



USDA Forest Service - Southern Research Station - 320 Green Street, Athens GA 30602 - <http://www.srs.fs.usda.gov/disturbance>



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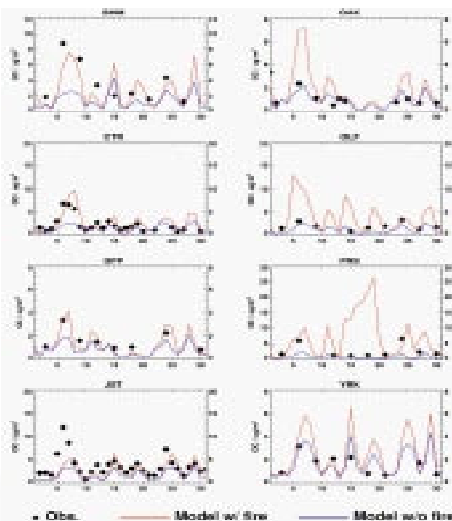
## Outreach Activities:

- Two organized groups totaling 24 people visited the Brender Demonstration Forest in March. One group participated in a workshop on streamside management zones (SMZ) within a timber sale, held for consultant foresters, loggers and timber buyers. Topics included stream classification, necessary basal area and shade retention and SMZ width. Another group was Forest Service employees.
- The first of three spring turkey hunts has started on Brender Forest. A total of 35 people came by the office for information and 71 people hiked the Hitchiti Interpretive Trail.



Some of the beautiful turkeys of Georgia.

## Technology Transfer:



Preliminary CMAQ simulations of organic carbon (OC) at 8 Georgia sites during a month of 2002 conducted by Georgia Tech. The horizontal and vertical coordinates are the day of the month and OC concentration, respectively. The dots, red lines, and blue lines represent measurement, simulation with and without prescribed burns. The simulation with burn shows a general agreement in temporal variation with the measurement, but overestimates are found, especially on the 6th at OAK and OLF sites, and during 15-20th at PNS.

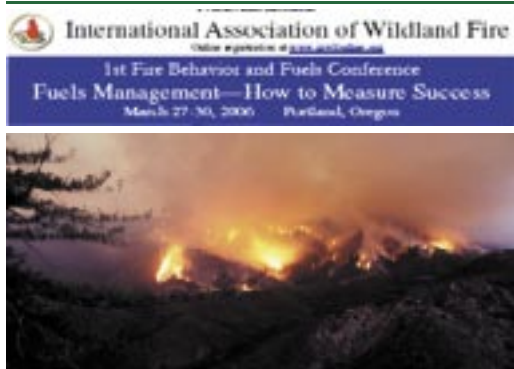
- A research group led by Professors Yuhang Wang and Ted Russell of Georgia Tech completed a simulation of particulate matter concentrations

from prescribed burns in Georgia. The results showed some overestimates of OC and EC concentration in the boundary layer. They plan to use CMAQ-Daysmoke to look at possible causes. CMAQ-Daysmoke is a part of the SHRMC Southern Smoke Simulation System (SHRMC-4S), now available offline in a linked version. Full coupling between CMAQ and Daysmoke is under construction by Yong Liu and Gary Achtemeier and will be provided to the Tech group upon completion.

- John Stanturf presented a training seminar on Fire in the Wildland Urban Interface at the North Carolina Wildland Fire Conference, held in Greensboro, North Carolina.

- Richard Reitz prepared and taught the fire portion of the inaugural Forest Health and Protection Course at the University of Georgia, focusing on insects, disease and fire. The four lectures and two laboratories of the fire portion of this course covered wildland fire prevention and detection, wildland fire suppression, forest structure and fire behavior, and wildland fire use. Scott Goodrick assisted in teaching the fire behavior laboratory with a nomogram exercise.

## Technology Transfer:



- Rick Reitz presented a paper entitled “Fuel management success on private land with Firewise” at the International Association of Wildland Fire’s Fuels Management – How to Measure Success Conference in Portland, Oregon.

- Mac Callaham hosted Dr. Mary Savin and one of her graduate students, Peter Tomlinson, for a two-day earthworm identification workshop. The two are initiating some work involving earthworms in pasture systems, and they needed to brush up on their microscope skills. Callaham and UGA grad student Bruce Snyder provided the visitors with a broad survey of the native and introduced earthworm fauna of the southeast. Mary and Peter learned a lot, and a good time was had by all!

- Ken Outcalt attended a workshop on using the selection method in longleaf pine at Blackwater State Forest, Munson, FL. This was to facilitate tree marking in a cooperative study entitled “Comparative analysis of forest reproduction methods for sustainable management of longleaf pine forest ecosystems, 4104-3.8.” Dale Brockway, SRS-4104 in Auburn, and Ed Loewenstein, Auburn University, provided background and the basis of applying the marking system to John Klempa, other resource managers, and the local marking crew from Division of Forestry. Following this session, Outcalt assisted in guiding the DOF crew in applying the marking rules to study stands on the forest

- Ken Outcalt provided technical assistance to Randy Smith of Sandy Creek Nature Center in Athens. Ken reviewed an area the Center wanted to burn, advised them on appropriate preparation, and helped them develop their burn plan.



Sandy Creek restoration area 3 weeks after prescribed burn.



Example of stand with marked trees.

## Meetings/Reports:

- John Stanturf attended the Auburn School of Forestry and Wildlife Sciences Advisory Council meeting. While in Auburn, he gave an invited Departmental Seminar on “What is forest restoration and why should we care.” He also met with Associate Dean Emeritus George Bengston and interviewed him on the early days of forest fertilization research for a book project.



Attendees at workshop held at the Joseph W. Jones Center.

- Joe O’Brien and Mac Callaham attended a workshop on future range of variation at the Joseph W. Jones Center for Ecological Research. The workshop was one of several funded by the National Commission on Science for Sustainable Forestry and organized by Dr. Norman Johnson of Oregon State University. The goal of the workshop was to discuss to what extent historical patterns in vegetation and disturbance should drive current landscape management and what are the alternatives. The meeting was attended by about 30 land managers and scientists hailing from forest industry, conservation NGO’s, and government land management agencies. The first day consisted of presentations on subjects ranging from palynological records of vegetation to present day patterns in land ownership. On the second day, participants split into two groups for facilitated discussion of the questions. The consensus of workshop participants was that the past can provide limits to what variation to expect or emulate, but since the current landscape is unprecedented, both in terms of spatial patterns of vegetation and climate, using an arbitrary period in the past as a target for management is probably not the best strategy for managing southern landscapes.

- Tom Waldrop is continuing his work with the Ecological and Environmental Science Portfolio Team (Portfolio B), a component of the National Fire R&D Strategic Planning Area. The group is chaired by Ed Deput of the Pacific Northwest Station. Members include Jeanne Chambers of the Rocky Mountain Research Station, Peter Stine of the Pacific Southwest Station, Tom Schuler of



the Northeastern Research Station; Tom Waldrop represents the Southern Research Station. Liaisons with the Washington Office include Al Riebau, Sue Conard, and Deb Hayes. The group is charged with providing support information in the budget-making process for fire research. They developed a set of criteria that was used to evaluate priority research areas among the elements of the portfolio. Approximately 10 percent of all Forest Service scientists from across the country responded to the survey. Results will be shared with the Fire SPA. The group is also collecting information from each research unit about ongoing projects and broad

of being converted to agriculture or other land uses. If the wood properties of Bahamian pine are found to be of high quality, the development of a sustainable harvesting program coupled with the local production of a valuable product such as flooring could generate income to support forest and park management costs and keep the land in forest cover.



A sample of *Pinus caribaea* var *bahamensis* from the Bahamian pine forests

## Partnerships:

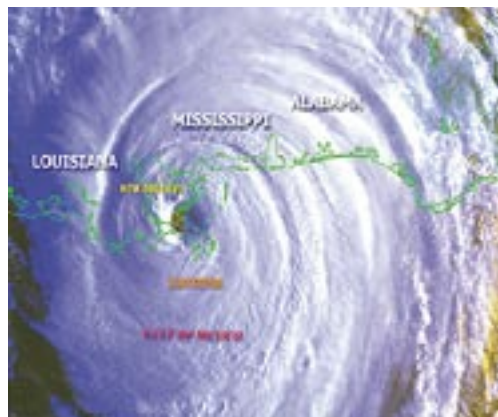


Soil on left is without worms and right is with worms.

- Mac Callaham journeyed to the campus of DePaul University in Chicago to participate in a workshop of soil ecologists from across the US. The objective of the workshop was to develop a research agenda for soil ecologists within the broader discipline of Restoration Ecology. The participants also discussed plans for a much larger meeting on the same subject, to be held at DePaul in December of 2006. He and fellow participant Chuck Rhoades of the Rocky Mountain Research Station were surprised to encounter John Stanturf and Dave Cleaves, RMRS Director, who were staying in the same hotel and attending the Forest Service Research Executive Team meeting.

- Joe O'Brien met with Prof. Laurie Schimleck of UGA Forestry to plan new research on Bahamian pine wood quality. The research will investigate wood properties related to potential uses such as flooring or other high-end uses and will also involve Alex Clark. At the moment, the non-parkland Bahamian pine forests are not seen as a valuable asset and are in danger

- Yongqiang Liu initiated a cooperative research project with Prof. John Qu of the EastFire Center at George Mason University on "Estimating Hurricane Impacts on Forest Fuels with Multi-sensor Satellite Remote Sensing." The goal of this project is to develop an integrated, modularized, rapid response system for post-hurricane biomass change assessment for short-term and long term decision support. Objectives are to evaluate the utility of various remote sensing measurements for fuel change detection, investigate approaches to identify short term fuel components change caused by hurricanes with multiple sensor measurements, and develop an algorithm for rapidly mapping hurricanes impacted areas in terms of biomass change. The project will focus on recent damage from Hurricanes Katrina and Rita.



Satellite view of Hurricane Katrina.

## Personnel News:



- Gary Achtemeier attended the Wildland Fire 2006 Conference in Phoenix, Arizona where he joined others on the Savannah River Forest Research Team to receive the National Fire Plan Award for Excellence in Science. The award was featured in Focus, the Savannah River Site's Federal Employee Newsletter. "The USDA-Forest Service-Savannah River (USFS-SR) recently won the 2005 National Fire Plan award for excellence in research. Research conducted by USFS-SR will help to protect firefighters and public health through improved smoke monitoring, modeling and management, to enhance restoration of longleaf/savanna ecosystems and to better establish a baseline for fuels reduction accountability. The research was a cooperative effort with the School of Public Health at the University of Georgia, the Forest Service's Southern Research Station and Wildland Fire Sciences Laboratory, and the Washington Savannah River Company's Atmospheric Technologies Group." From an article by PJ Hoontrakul, NNSA

- Early Alert!! Ken Outcalt, Tom Waldrop, and John Stanturf won Director's Awards that will be presented at the Southern Research Station Management Team meeting in Durham in April; more on these awards next month.

## Personnel News:



• Ken Tougaw, a University of Georgia Forestry student, has been hired as a temporary, part-time, forestry technician and will be working for Alex Clark and the Wood Quality Team.



Welcome our newest little forester.

• Helen Mohr gave birth to Dulcie Lorraine Mohr on March 13. Dulcie weighed 10 pounds, 9 ounces and was 21 inches long. Everyone is doing so well that Helen is becoming bored. She visited the unit on April 3 and asked for work that she could do at home. Congratulations to Helen, Kenny, and Clay Mohr.

• John Stanturf began a two-month long detail in the Washington Office as Acting Director, Forest Management Science Research Staff (formerly Vegetation Management and Protection Research staff).

## Funding:

• Mac Callaham was a co-PI on a proposal submitted to the US Department of Energy's Terrestrial Carbon Processes Program to continue work at the Oak Ridge National Laboratory (ORNL), and to initiate new work dealing with carbon dynamics in the Ameriflux network. The research is led by Dr. Paul J. Hanson of ORNL, and involves a large number of other investigators. Title of the proposal is "Characterizing organic carbon fluxes from litter sources to mineral soil

## Funding:

sinks (1) Enriched Background Isotope Study (EBIS) Closure, and (2) Establishment of a Distributed Enriched Isotope Study for Ameriflux Hardwood Forests."



## News from Around the Region:

• International Paper moved aggressively to divest itself of timberland by completing sales of 85% of the company's US holdings. In the single largest private land conservation sale in the history of the South, The Nature Conservancy and the Conservation Fund purchased a total of 218,000 acres of forestlands across 10 states for approximately \$300 million. The Nature Conservancy will acquire more than 173,000 acres in North Carolina, Virginia, Georgia, Florida, Alabama, Arkansas, Tennessee, Louisiana and Mississippi. The Conservation Fund will acquire more than 5,000 acres in Florida and 500 in North Carolina. The two groups will jointly purchase an additional 39,000 acres in South Carolina. IP also has agreed to sell 69,000 acres of forestland in Wisconsin to The Nature Conservancy for approximately \$83 million. In another sale, 5.1 million acres in parcels throughout the southern US and Michigan were purchased by timberland investment firms Resource Management Services LLC and TimberStar. The combined sales bring in \$6.5 billion. The sales include long-term fiber supply agreements. (Source: Reuters)

The U.S. Environmental Protection Agency and the U.S. Army Corps of Engineers are proposing a new rule to better protect and preserve wetlands. The rule, being published for public comment, proposes improved science and results-oriented standards to increase the quality and effectiveness of wetlands conservation practices under the Clean Water Act, according to the agencies. <http://www.wastenews.com/headlines2.html?id=1143653243>

• The sixth session of the UN Forum on Forests

## News from Around the Region:

decided to recommend that the UN General Assembly proclaim 2010 as the International Year of Forests. The initiative, sponsored by the Government of the Republic of Croatia, seeks to promote renewed national efforts to bring forest issues to the attention of key national actors, with the aim of working toward achieving the internationally agreed goals and targets set at global conferences.

• A report released by the World Wildlife Fund predicts that winter storms could increase by up to 25% in the United Kingdom as a result of climate change. In the report Stormy Europe WWF looked at the increase in severe winter storms, the increase in the number of days with extremely high wind speeds, and the increase in maximum wind speeds. The UK could be hit by 10 extra severe storms - similar on scale to the Great Storm of 1987 - over a 30-year period between 2071 and 2100, based on climate change modeling. The Netherlands was predicted to suffer the next largest increase in future storm activity with top wind speeds in this region potentially growing by up to 15%. France would see the third largest increase in winter storm activity, with the number of storms likely to grow by up to 10% to 20% by the end of the century, with top wind speeds increasing by up to 16%. Most of the increase would be concentrated over the northern parts of the country, and the number of days with extremely high wind speeds could increase by up to 25% to 50%.

• A new report from the Government Accountability Office (GAO) confirms other criticism of the Endangered Species Act (ESA) such as the Office of Management and Budget's Not Performing report. As requested by several members of the House of Representatives Senate, the GAO conducted a review of endangered species recovery plans to determine if they contained several key elements, including the amount of time and money it would take to recover species addressed in each plan. The GAO also reviewed the plans to see if they contained criteria which, when met, would indicate the species status had improved enough that the species no longer needed to be listed as endangered or threatened. From a sample of 107 recovery plans, the GAO found that only 34 plans included an estimated date by which the species would be recovered. GAO found that even fewer plans, 20, included an estimated cost for recovery. The GAO also found that 102 of the 107 plans reviewed failed to address all of the factors that are considered when the agencies determine whether or not a species is endangered. (Source: Press Release, House Resources Committee; report available at <http://www.gao.gov/new.items/d06463r.pdf>)



## FY 2006 Publications (\* denotes new publication this month)

### Refereed Journals and Book Chapters

Frank, J.H., Foltz, J.L., and Almquist, D.T. 2005. The female of *Oxybleptes meridionalis* (Coleoptera: Staphylinidae: Staphylininae) and range extension for *Oxybleptes*. *Florida Entomologist* 88(2):199-200. (Unit funded under agreement #02-1A-11330136-030; funding source Joint Fire Sciences Program)

**Jordan, L.**, Daniels, R.F., **Clark, A. III**, He, R. 2005. Multilevel nonlinear mixed-effects models for the modeling of earlywood and latewood microfibril angle. *Forest Science* 51(4): 357-371.

**Liu, Y.-Q.** 2005. Atmospheric response and feedback to radiative forcing from biomass burning in tropical South America. *Agricultural and Forest Meteorology*. 133, 40-53.

**Liu, Y.-Q.** 2005. Land breeze and thermals: A scale threshold to distinguish their effects. *Advances in Atmospheric Science*, Vol. 22, No. 6, 889-902

**Liu, Y.-Q.**, Fu, R., Dickinson, R. 2005. Smoke aerosols altering South American monsoon. *Bulletin American Meteorological Society* 86(8): 1062-1063.

**Liu, Y.-Q.**, Avissar, R. 2005. Modeling of the global water cycle - analytical models. In M. G. Anderson, Ed. *Encyclopedia of Hydrological Sciences*. John Wiley & Sons, pp. 3456.

Logan, S.R., **Edwards, M.B.**, Shiver, B.D. 2005. Survival and growth of seed trees 20 years after a natural regeneration cut in the Piedmont of Georgia. *Southern Journal of Applied Forestry* 29(4): 173-178.

Moser, W.K., **Wade, D.D.** 2005. Fire exclusion as a disturbance in the temperate forests of the USA: Examples from longleaf pine forests. *Scandinavian Journal of Forest Research* 20 (Suppl 6): 17-26.

Qu, J., Hao, X., Yang, R., Sommers, W., Dasgupta, S., Bhoi, S., Kafatos, M., **Liu, Y.-Q.**, **Achtemeier, G.**, Riebau, A.R., Coronado, P. 2005. Bridging Earth observations: remote sensing measurements, fire modeling, and air quality decision support system in the eastern United States. *Earth Observation Magazine* 14 (6).

Rall, A.E. 2004. Effects of longleaf pine management practices on the herpetofauna of south Alabama. M.S. Thesis, Auburn University. 61p. (Unit funded under agreement #02-1A-11330136-030; funding source Joint Fire Sciences Program)

**Reilly, M.J.**, Wimberly, M.C., Newell, C.L. 2006. Wildfire effects on plant species richness at multiple spatial scales in forest communities of the southern Appalachians. *Journal of Ecology* 94: 118-130.

**Reitz, R.** 2005. Forests and people: The symbiotic relationship. Pp. 89-93 *In American Perspectives on the Wildland/Urban Interface*. The National Wildland/Urban Interface Fire Program; 113 p.

Rhy, Soung-Ryoul, Chen, Jiquan, Crow, Thomas R., **Saunders, Sari. C.** 2004. Available fuel dynamics in nine contrasting forest ecosystems in North America. *Environmental Management* Vol. 33, Supplement 1, pp. 87-107.

Rompere, Ghilain. 2003. Successful nesting of the sharp-shinned hawk (*Accipiter striatus*) in a longleaf pine stand in southern Alabama. *Alabama Birdlife* 49(1):10-13. (Unit funded under agreement #02-1A-11330136-030; funding source Joint Fire Sciences Program)

**Saunders, S.C.**, J. Chen, T.D. Drummer, E.J. Gustafson, and K.D. Brososke. 2005. Identifying scales of pattern in ecological data: A comparison of lacunarity, spectral and wavelet analyses. *Ecological Complexity* 2: 87-105.

**Schulte, Lisa A.** and Mladenoff, David J. 2005. Severe wind and fire regimes in northern forests: Historical variability at the regional scale. *Ecology*, 86(2): 431-445.

Sharp, N.W. 2005. Demography of small mammal populations in longleaf pine undergoing restoration. M.S. Thesis, Auburn University, 84p. (Unit funded under agreement #02-1A-11330136-030; funding source Joint Fire Sciences Program)

Varner, J.M. III, Gordon, D.R., Putz, F.E., Hiers, J.K. 2005. Restoring fire to long unburned *Pinus palustris* ecosystems: Novel fire effects and consequences for long-unburned ecosystems. *Restoration Ecology* 13(3): 536-544. (Unit funded under agreement #02-1A-11330136-030; funding source Joint Fire Sciences Program)

### Proceedings and Reports

\*Brockway, D., **Outcalt, K.**, Waites, J., Loewenstein, E. 2006. Comparative Analysis of Forest Reproduction Methods for Sustainable Management of Longleaf Pine Forest Ecosystems: Goethe State Forest. Establishment Report on file at the Andrews Forestry Sciences Laboratory, Auburn University, AL. 49pp.

\*Brockway, D., **Outcalt, K.**, Waites, J., Loewenstein, E. 2006. Comparative Analysis of Forest Reproduction Techniques for Sustainable Management of Longleaf Pine Forest Ecosystems: Blackwater River State Forest. Establishment Report on file at the Andrews Forestry Sciences Laboratory, Auburn University, AL. 43pp.

Brockway, D.G., **Outcalt, K.W.**, Tomczak, D.J., Johnson, E.E. 2005. Restoration of longleaf ecosystems. USDA Forest Service Southern Research Station General Technical Report SRS-83, Asheville, NC; 34 pp.

**Cleland, David**, Crow, Thomas, Saunders, Sari, Maclean, Ann, Dickmann, Donald. 2005. Characterizing historic and contemporary fire regimes in the Lake States. Final Report to the Joint Fire Science Program. 81 pp.

**Kennard, D, Fowler, C. T.**, Hubbard, W. and Rauscher, M. 2005. The Encyclopedia of Southern Fire Science. In: Kush, J.S., comp., *Longleaf Pine: Making Dollars and Sense*, Proceedings Fifth Longleaf Alliance Regional Conference, 2004 October 12-15, Hattiesburg, MS, Longleaf Alliance Report No. 8: 97-100. (SRS-4104-6009)

**Liu, Y.-Q.** 2005. Spatial relationships between SST and U.S. Wildfires, *Proceedings of the Sixth Fire and Forest Meteorology Symposium*, 25-27 October 2005, Canmore, AB, Canada, Paper 6.2, P1-6 (available in CD). [http://ams.confex.com/ams/6FireJoint/techprogram/programexpanded\\_302.htm](http://ams.confex.com/ams/6FireJoint/techprogram/programexpanded_302.htm)

**Outcalt, K.W.** 2005. Restoring structure and composition of longleaf pine ecosystems of the Gulf Coastal Plain. In: Kush, J.S., comp., *Longleaf Pine: Making Dollars and Sense*, Proceedings Fifth Longleaf Alliance Regional Conference, 2004 October 12-15, Hattiesburg, MS, Longleaf Alliance Report No. 8: 97-100. (SRS-4104-6009)

**Outcalt, K.W.** 2005. National Fire and Fire Surrogate Study, 7th Annual SMIC Meeting and Field Trip. October 2005. Solon Dixon Forestry and Education Center, Andalusia, AL [Report]

**Outcalt, K.W.** 2005. National Fire and Fire Surrogate Study, Fuels Treatment Workshop and Field Trip. October 2005. Solon Dixon Forestry and Education Center, Andalusia, AL [Report]

Schoenholtz, S.H., **Stanturf, J.A.**, Allen, J.A., Schweitzer, C.J. 2005. Afforestation of agricultural lands in the Lower Mississippi Alluvial Valley: The state of our understanding. pp. 413-432. In L.H. Fredrickson, S.L. King, and R. M. Kaminski, eds. *Ecology and Management of Bottomland Hardwood Systems: The State of our Understanding*. University of Missouri-Columbia. Gaylord Memorial Laboratory Special Publication No. 10. Puxico, MO.

\***Stanturf, J.A.** 2006. What is forest restoration? P. 23-36 in Proceedings of the 2006 Annual Meeting of the Korean Forest Society, Seoul National University, Seoul, Republic of Korea.

#### Other Publications

**Goodrick, S. Stanturf, J., Sullivan, F., Outcalt, P., Gillmore, G., McCracken, R., Mundy, E.** 2005. Biennial Southern Silvicultural Research Conference Proceedings 1-12, 1980-2003. Archive and bibliography on CD-ROM.

**Outcalt, K.W.** 2005. Prescribed Burning Research in the Piedmont of Georgia. Demonstration Forest Project Hitchiti Experiment Forest, Jarrell, GA. [3-Panel Outdoor Display]

**Outcalt, K.W.** 2005. Prescribed Burning Research on the Hitchiti Experimental Forest. Demonstration Forest Project Hitchiti Experiment Forest, Jarrell, GA. [Information Card]

**Outcalt, K.W.** 2005. Long-term Dormant-Season Burning Study Located in the Palmetto/Gallberry Fuel Complex. Demonstration Forest Project Osecola National Forest, Olustee, FL. [Outdoor Display]

**Outcalt, K.W.** 2005. We can't keep fire out of these woods. We can only choose between prescribed burns or wildfire. Demonstration Forest Project Osecola National Forest, Olustee, FL. [Outdoor Display]

**Outcalt, K.W.** 2005. We can't keep fire out of these woods. We can only choose between prescribed burns or wildfire. Demonstration Forest Project Osecola National Forest, Olustee, FL. [Information Card]

**Outcalt, K.W.** 2005. Fire and Fire Surrogate Study in the Gulf Coastal Plain. October 2005 Solon Dixon Forestry and Education Center, Andalusia, AL [Bookmark]

**Outcalt, K.W.** 2005. Fire and Fire Surrogate Study in the Southern Coastal Plain. October 2005 Myakka River State Park, Sarasota, FL [Bookmark]

**Waldrop, T.** 2006. Ecological impacts of fuel reduction: presentations at a workshop held 24-25 January 2006 in Asheville, North Carolina. CD-ROM available from the RWU-4104, Athens, GA.

#### Abstracts and Posters

**Achtemeier, Gary L.**, and Luke Naeher. 2005. Measurements of ground-level PM<sub>2.5</sub> concentrations downwind from Southern prescribed burns. Sixth Symposium on Fire & Forest Meteorology and the 19th Interior West Fire Council Meeting, October 25-27, Canmore, Alberta, Canada. Sponsored by the American Meteorological Society [Poster]

**Achtemeier, Gary L.** 2005. On plume rise – matching Daysmoke with Briggs Equations for industrial stacks. Sixth Symposium on Fire & Forest Meteorology and the 19th Interior West Fire Council Meeting, October 25-27, Canmore, Alberta, Canada. Sponsored by the American Meteorological Society [Abstract]

Alahari, N., Sublette, K., Jennings, E., Thoma, G., Wolf, D., Duncan, K., **Callaham, M. Jr.**, Todd, T. 2005. Earthworms as ecoengineers in the restoration of oil and brine impacted soils following remediation. International Petroleum Environmental Conference, November 2005, Houston, Texas [Abstract]

**Callaham, M.A.**, Richter, D.D., Hofmockel, M. 2005 Long-term land use effects on soil invertebrate communities in Southern Piedmont soils. Ecological Society of America annual meeting, 8-11 August, Montréal, Canada [Poster]

**Callaham, M.A., Jr., Stanturf, J.A.**, Boerner, R.E.J. 2005. Viewing ecosystem restoration through the glass of soil ecology: Making use of the illuminated ped. Symposium Honoring Dr. David C. Coleman, 28-29 October, Athens, Georgia [Poster]

**Callaham, M.A. Jr.**, Todd, T.C., Kitchen, D.J., Blair, J.M., Williams, M.A., Rice, C.W. 2005. Long-term studies on soils and soil biology in a Kansas tallgrass prairie: Stories that only time can tell. Invited symposium presentation at the Soil Science Society of America Annual Meeting, 6-10 November, Salt Lake City, Utah [Abstract]

**Camp, D.L., S.R. Bennett, M.A. Callaham, Jr.**, and P.F. Hendrix. 2006. Native and exotic earthworm effects on C and N dynamics in a growth chamber experiment. Poster Presentation at 12th Annual Ecology Student Symposium at the University of Georgia, Institute of Ecology, Athens, GA. [Published abstract]

Canfield, J.M., Linn, R., Cunningham, P., **Goodrick, S.L.** 2005. Modeling effects of atmospheric stability on wildfire behavior. Sixth Symposium on Fire & Forest Meteorology and the 19th Interior West Fire Council Meeting, October 25-27, Canmore, Alberta, Canada. Sponsored by the American Meteorological Society [Abstract]

Cunningham, P., **Goodrick, S.L.** 2005. High-resolution numerical model simulations of fire plume dynamics. 2005. Sixth Symposium on Fire & Forest Meteorology and the 19th Interior West Fire Council Meeting, October 25-27 Canmore, Alberta, Canada. Sponsored by the American Meteorological Society [Poster]

**DiCosty, Ralph J., Callahan Jr., Mac A., Stanturf, John A.** 2005. Atmospheric deposition and re-emission of mercury estimated in a prescribed forest fire experiment in Florida, USA. Soil Science Society of American Annual Meeting, 6-10 November, Salt Lake City, Utah [Poster]

Giai, C., **Callahan, M.A. Jr.**, and Boerner, R.E.J. 2006. A mechanistic approach to determining why fire and thinning affect soil organic matter and nutrient status in Appalachian oak forests. Central Hardwoods Forest Conference, February 27-March 1 2006, Knoxville, TN [Poster]

**Goodrick, S.L.** 2005. Building historical gridded weather data sets for fire program analysis. Sixth Symposium on Fire & Forest Meteorology and the 19th Interior West Fire Council Meeting, October 25-27, Canmore, Alberta, Canada. Sponsored by the American Meteorological Society [Poster]

**Goodrick, S.L.**, Cunningham, P. 2005. A mechanism for the formation of transverse horizontal vortices on wildland fires. Sixth Symposium on Fire & Forest Meteorology and the 19th Interior West Fire Council Meeting, October 25-27, Canmore, Alberta, Canada. Sponsored by the American Meteorological Society [Abstract]

**Goodrick, S.L.**, Hanley, D.E. 2005. Atmospheric teleconnections and wildfires in the southeastern United States. Sixth Symposium on Fire & Forest Meteorology and the 19th Interior West Fire Council Meeting, October 25-27, Canmore, Alberta, Canada. Sponsored by the American Meteorological Society [Poster]

Hanley, D.E., Cunningham, P., **Goodrick, S.L.** 2005. The interaction between a wildfire and a sea-breeze front. Sixth Symposium on Fire & Forest Meteorology and the 19th Interior West Fire Council Meeting, October 25-27, Canmore, Alberta, Canada. Sponsored by the American Meteorological Society [Poster]

Linn, R.R., Canfield, J., Winterkamp, J., Cunningham, P., Colman, J., Edminster, C., **Goodrick, S.L.** 2005. Numerical simulations of fires similar to those of the international crown fire modeling experiment. Sixth Symposium on Fire & Forest Meteorology and the 19th Interior West Fire Council Meeting, October 25-27, Canmore, Alberta, Canada. Sponsored by the American Meteorological Society [Abstract]

**Liu, Y.-Q., G. Achtemeier and S. Goodrick.** 2005. CMAQ-Daysmoke as a Smoke and Air Quality Management Technique: A Case Study of a Prescribed Burning in Georgia. In: Proceedings Sixth Fire and Forest Meteorology Symposium, October 25-27, Canmore, AB, Canada [Abstract]

**Liu, Y.** 2006. A physical based forest fuel moisture scheme for high-resolution fire modeling. 2005. In: Proc. 2006 Annual Meeting of the American Meteorological Society, 30 January 22 February 2006, Atlanta, GA [Abstract]

**Outcalt, K.W.**, Wade, D. 2005. Response of a mixed longleaf (*Pinus palustris*) and loblolly pine (*Pinus taeda*) community to long-term dormant season prescribed burning. Ecological Society of America annual meeting, 8-11 August, Montréal, Canada [Poster]

**Outcalt, K.W.** 2005. Frequency and season of prescription fires to reduce hazardous fuel loads on the lower Piedmont of Georgia. In: Proceedings of the Annual Joint Fire Science Program Principal Investigator Workshop, November 1, San Diego, California. [Poster]

Sanchez, Felipe, Coleman, M., Garten, C.T., Luxmoore, R., **Stanturf, J.A.**, Wullschlegel, S.D. 2005. Soil carbon, after three years, under short rotation woody crops grown under a range of nutrient and water availability. Soil Science Society of American Annual Meeting, 6-10 November, Salt Lake City, Utah [Abstract]

**Stanturf, J.A.**, Burbridge, P.R., Gardiner, E.S., Perdue, J.H. 2005. Disturbance in the face of climate change: Incorporating disturbance into management of coastal forests. International Workshop on the Scale of Natural Disturbances from Tree to Stand; 29 September to 1 October, Palanga, Lithuania; Lithuanian Forest Research Institute, Kaunas, Lithuania. [Abstract]



Photos from Masthead: Signs of Spring in Athens, Ga



White Flowering Dogwood  
*Cornus florida*



Pink Flowering Dogwood  
*Cornus florida rubra*



Bradford Flowering Pear -  
*Pyrus calleryana*



Shinnery Pink Azalea  
*Rhododendron periclymenoides*  
(Michx.)



American Wisteria  
*Wisteria frutescens* (L.) Poir.





## Upcoming Events:

### 2006

Apr 4-6	Southern Research Station Management Team Meeting, Durham, NC	Aug 6-11	Ecological Society of America annual meeting, Memphis, TN; <a href="http://www.esa.org/memphis/">http://www.esa.org/memphis/</a>
*Apr 5-7	Lower Mississippi Alluvial Valley Stakeholders Workshop, Memphis, TN; Stanturf to attend.	Aug 8-10	Forest and Water in a Changing Environment Beijing, China; Chinese Academy of Forestry, Beijing Forestry University and Southern Research Station.
Apr 6-7	Southern Regional Conference on Forestry Technology Transfer and Science Delivery, San Antonio, Texas	Aug 22-25	5th European Conference on Ecological Restoration: "Land use changes in Europe as a challenge for restoration ecological, economical and ethical dimensions" University of Greifswald, Germany <a href="http://www.uni-greifswald.de/SER2006">http://www.uni-greifswald.de/SER2006</a>
Apr 8-12	International Conference on Hydrology and Management of Forested Wetlands, New Bern, North Carolina; <a href="http://www.asae.org/imis/meeting/forestcall.cfm">http://www.asae.org/imis/meeting/forestcall.cfm</a>	Aug 28-Sep 1	IEA Bioenergy Task 29, Task 31 and Task 39, International Workshop "Biofuels and Bioenergy: Challenges and Opportunities," University of British Columbia, Vancouver Canada; <a href="http://www.ieabioenergytask31.org/">http://www.ieabioenergytask31.org/</a>
Apr 19-21	17th Global Warming International Conference and Expo, Miami, Florida; <a href="http://globalwarming.net">http://globalwarming.net</a>	*Sep 11-14	Baltic-Scandinavian Disturbance Network annual meeting, Tromsø, Norway with field excursions to Lapland in Finland (Alta, Lakselv and Kilpisjärvi); <a href="http://www.eau.ee/~ecosyst/index.php?page=coming">http://www.eau.ee/~ecosyst/index.php?page=coming</a>
*Apr 26-27	Symposium on Forest Disturbance, Management and Biodiversity, Denver, CO; National Commission on Science for Sustainable Forestry; <a href="http://www.ncssf.org">http://www.ncssf.org</a>	Sep 25-28	2006 biennial meeting Short Rotation Woody Crops Operations Working Group, Red Lion Inn, Pasco, Washington; tentatively, joint meeting with Poplar Council of Canada, US Poplar Council, IUFRO Temperate Short Rotation Forestry Working Party 1.03.02, and SAF Agroforestry Working Group;
*Apr 27-28	Spring 2006 Southeastern Hardwood Forestry Group Meeting, Franklin, North Carolina; contact <a href="mailto:peggyanderson@fs.fed.us">peggyanderson@fs.fed.us</a>	Sep 25-27	IUFRO Oak Silviculture Working Party (1.06) meeting, Stevens Point, WI; optional pre-conference field trip to SW WI on Sept 21-23, and optional post-conference tour to northern WI on Sept 28-30.
May 21-24	Challenges in Coastal Hydrology and Water Quality, Baton Rouge, Louisiana; <a href="http://www.cce.lsu.edu/facultyStaff/Singh_Ve_jay/index.html">http://www.cce.lsu.edu/facultyStaff/Singh_Ve_jay/index.html</a>	Sep 26-19	Patterns and Processes in Forest Landscapes; Consequences of Human Management, University of Bari, Italy; IUFRO 8.01.03 Landscape Ecology; <a href="http://www.greenlab.uniba.it/events/iufro2006/">http://www.greenlab.uniba.it/events/iufro2006/</a>
*May 31-Jun 2	Workshop on "Critical Processes and Properties Regulating Carbon Cycling in Southern Forests," Southern Forest Research Partnership, Asheville, NC; <a href="http://sfriponline.net/events.htm">http://sfriponline.net/events.htm</a>	Oct 4-7	IUFRO and EFI International Meeting, "Ecosystem Goods and Services from Planted Forests," Bilbao, Spain; <a href="http://www.iefc.net">http://www.iefc.net</a>
Jun 3-8	12th International Symposium on Society and Natural Resource Management, Vancouver, BC, Canada; <a href="http://www.issrm2006.rem.sfu.ca">http://www.issrm2006.rem.sfu.ca</a>	Oct 10-13	Conference on "Sustainable Forest Management with Fast Growing Plantations", Charleston, SC; contact Dave Wear <a href="mailto:dwear@fs.fed.us">dwear@fs.fed.us</a>
Jun 5-9	Fourth International Poplar Symposium, "Meeting the Needs of a Growing World through Poplar and Willow Science: Combining Traditional and Novel Approaches in the Genomic Era," Nanjing, China, IUFRO Poplar and Willow Working Party 2.08.04; <a href="http://ips2006.njfu.edu.cn/">http://ips2006.njfu.edu.cn/</a>	Oct 25-29	Society American Foresters Annual Meeting, Pittsburgh, PA
*Jun 13-15	Forest Service National Invasive Species Conference, Denver, Colorado; <a href="http://fsweb.wo.fs.fed.us/invasivespecies/events/conference2006/index.shtml">http://fsweb.wo.fs.fed.us/invasivespecies/events/conference2006/index.shtml</a>	Oct 23-27	Knowledge management in forestry conference, sponsored by KnowForAlp, hosted by Forest Research Institute Baden Württemberg, Freiburg, Germany
Jul 18-20	Advances in Threat Assessment and Their Application to Forest and Rangeland Management, Boulder, Colorado; <a href="http://www.forestencyclopedia.net/encyclopedia/threats">http://www.forestencyclopedia.net/encyclopedia/threats</a>	Nov 12-16	Soil Science Society of American Annual Meeting, Indianapolis, IN; <a href="http://www.indy.org">http://www.indy.org</a>
Jul 9-15	18th World Congress of Soil Science, in Philadelphia, PA <a href="http://www.18wcso.org">http://www.18wcso.org</a>	Nov 13-17	3rd International Fire Ecology and Management Congress, San Diego, CA; <a href="http://emmps.wsu.edu/firecongress/">http://emmps.wsu.edu/firecongress/</a>
Jun 26-28	AWRA 2006 Summer Specialty Conference, Adaptive Management of Water Resources; Missoula, MT; <a href="http://www.awra.org/meetings/Montana2006/index.html">http://www.awra.org/meetings/Montana2006/index.html</a>	*Nov 14-16	SRS Management Team Meeting, joint with Region 8; Atlanta.
*Aug 2-4	Southern Regional Conference on Forestry Technology Transfer and Science Delivery, Little Rock, Arkansas; <a href="http://sref.info/2006/techtransfer">http://sref.info/2006/techtransfer</a>	<b>2007</b>	
Aug 6-11	Eighth International Conference on Mercury as a Global Pollutant Madison, WI; <a href="http://www.mercury2006.org/">http://www.mercury2006.org/</a> ; DiCosty to attend and present paper	Feb 26-Mar 1	14th Biennial Southern Silvicultural Research Conference, Athens, GA;



## Upcoming Events:

*May 14-18	IUFRO Forest Landscape Restoration Conference, Seoul, South Korea; venue is COEX in Seoul; <a href="http://www.coex.co.kr/">http://www.coex.co.kr/</a>	<b>2008</b>	
		Nov 5-9	Society American Foresters Annual Meeting, Reno, NV.
Summer	6th North American Forest Ecology Workshop, to be held in British Columbia	<b>2009</b>	
Oct 24-28	Society American Foresters Annual Meeting, Portland, OR.		World Forestry Congress, Buenos Aires, Argentina
Nov 4-8	Soil Science Society of American Annual Meeting, New Orleans, LA; <a href="http://www.neworleanscvb.com">http://www.neworleanscvb.com</a>		



# GPRA



# GPRA



## *GPRA - Accomplishment*

Category	FY 2004 Total	FY 2005 Total	FY 2006 To Date
Number of Refereed Journal Publications	20	21	18
Number of Non-Refereed Publications (include abstracts)	89	60	36
Number of Publications (refereed + non-refereed)	109	81	54
Number of Tours	41	40	23
Number of Short Courses/Training	20	13	20
Number of Invited Presentations to Scientific Organizations	12	7	16
Number of Invited Presentation to Lay Organizations	30	32	21
Volunteer Presentations to Scientific Organizations (non-GPRA	42	50	17
Number of Technology Transfer Activities (other than above)	105	132	62
Outside Funding	\$2,610,574	\$3,688,734	\$1,736,543

## SRS-4104 Project Leader's Report

John Stanturf - Editor Lynne Breland - Technical Writer  
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